1. Record Nr. UNINA9910483641003321

Titolo	Attention in cognitive systems : theories and systems from an interdisciplinary viewpoint ; 4th International Workshop on Attention in Cognitive Systems, WAPCV 2007, Hyderabad, India, January 8, 2007 : revised selected papers / / Lucas Paletta, Erich Rome
Pubbl/distr/stampa	Berlin, Germany ; ; New York, New York : , : Springer, , [2007] ©2007
ISBN	3-540-77343-6
Edizione	[1st ed. 2007.]
Descrizione fisica	1 online resource (XI, 500 p.)
Collana	Lecture notes in computer science, , 0302-9743 ; ; 4840. Lecture notes in artificial intelligence
Disciplina	006.3/7
Soggetti	Computer vision Neurosciences Attention - Computer simulation
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Earlier conferences titled: Attention and performance in computational vision. "euCognition"--Cover.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Embodiment of Attention -- The Embodied Dynamics of Emotion, Appraisal and Attention -- The Role of Attention in Creating a Cognitive System -- The Influence of the Body and Action on Spatial Attention -- Abstraction Level Regulation of Cognitive Processing Through Emotion-Based Attention Mechanisms -- Embodied Active Vision in Language Learning and Grounding -- Language Label Learning for Visual Concepts Discovered from Video Sequences -- Cognitive Control of Attention -- Learning to Attend — From Bottom-Up to Top-Down -- An Attentional System Combining Top-Down and Bottom-Up Influences -- The Selective Attention for Identification Model (SAIM): Simulating Visual Search in Natural Colour Images -- A Bayesian Approach to Attention Control and Concept Abstraction -- Modeling of Saliency and Visual Search -- An Information Theoretic Model of Saliency and Visual Search -- An Experimental Comparison of Three Guiding Principles for the Detection of Salient Image Locations: Stability, Complexity, and Discrimination -- A Proto-object Based

Visual Attention Model -- Context Driven Focus of Attention for Object Detection -- Color Saliency and Inhibition Using Static and Dynamic Scenes in Region Based Visual Attention -- I See What You See: Eye Movements in Real-World Scenes Are Affected by Perceived Direction of Gaze -- Sequential Attention -- Selective Attention in the Learning of Viewpoint and Position Invariance -- Generating Sequence of Eye Fixations Using Decision-Theoretic Attention Model -- Reinforcement Learning for Decision Making in Sequential Visual Attention -- Biologically Inspired Framework for Learning and Abstract Representation of Attention Control -- Biological Aspects of Attention -- Modeling the Dynamics of Feature Binding During Object-Selective Attention -- The Spiking Search over Time and Space Model (sSoTS): Simulating Dual Task Experiments and the Temporal Dynamics of Preview Search -- On the Role of Dopamine in Cognitive Vision -- Differences and Interactions Between Cerebral Hemispheres When Processing Ambiguous Words -- Attention in Early Vision: Some Psychophysical Insights -- Auditory Gist Perception: An Alternative to Attentional Selection of Auditory Streams? -- Applications of Attentive Vision -- Simultaneous Robot Localization and Mapping Based on a Visual Attention System -- Autonomous Attentive Exploration in Search and Rescue Scenarios -- Attention-Based Landmark Selection in Autonomous Robotics -- Simulation and Formal Analysis of Visual Attention in Cognitive Systems -- Region-Oriented Visual Attention Framework for Activity Detection -- Autonomous Attentive Exploration in Search and Rescue Scenarios.

Sommario/riassunto

Attentionhasbeenrepresentingacorescienti?ctopicinthedesignofAI-enabled systems within the last decades. Today, in the ongoing debate, design, and c- putationalmodelingofarti?cialcognitivesystems, attentionhasgainedacentral position as a focus of research. For instance, attentional methods are considered in investigating the interfacing of sensory and cognitive information processing, for the organization of behaviors, and for the understanding of individual and social cognition in re?ection of infant development. Whilevisualcognitionplaysacentralroleinhumanperception,?ndingsfrom neuroscience and experimental psychology have provided strong evidence about theperception-actionnatureofcognition. Theembodiednatureofsensory-motor intelligence requires a continuous and focused interplay between the control of motor activities and the interpretation of feedback from perceptual modalities. Decision making about the selection of information from the incoming sensory stream – in tune with contextual processing on a current task and an agent's global objectives – becomes a further challenging issue in attentional control. Attention must operate at interfaces between bottom-up driven world int- pretation and top-down driven information selection, thus acting at the core of arti?cial cognitive systems. These insights have already induced changes in AI-related disciplines, such as the design of behavior-based robot control and the computational modeling of animats. Today, the development of enabling technologiessuch as autonomous robotic systems,miniaturizedmobile–evenwearable–sensors,andambientintelligence systems involves the real-time analysis of enormous quantities of data. These data have to be processed in an intelligent way to provide "on time delivery" of the required relevant information. Knowledge has to be applied about what needs to be attended to, and when, and what to do in a meaningful sequence, in correspondence with visual feedback.